

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)



Applicant's or agent's file reference FPC03028-PCT	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. <b>PCT/KR2004/003530</b>	International filing date (day/month/year) <b>30 DECEMBER 2004 (30.12.2004)</b>	(Earliest) Priority Date (day/month/year) 31 DECEMBER 2003 (31.12.2003)
Applicant <b>LG CHEM, LTD. et al</b>		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b.  With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2.  Certain claims were found unsearchable (See Box No. II)

3.  Unity of invention is lacking (See Box No. III)

## 4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

## 5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

## 6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 3

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

- b.  none of the figure is to be published with the abstract.

BEST AVAILABLE COPY

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2004/003530

**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 H01M 4/58**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Korean patents and applications for inventions since 1975: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Delphion and keywords: electrode, active material, size, Li, Mn, Ni, Co and similar words

CA on CD and keywords: electrode, active material, size, Li, Mn, Ni, Co and similar words

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5718989 (JAPAN STORAGE BATTERY CO., LTD) 17 February 1998, column 2-4	3
A	JP200345424A (MITSUBISHI CHEMICALS CORP) 12 February 2003, claim 4	3
A	JP2003007298A (YUASA CORP) 10 January 2003, claim 1-7	1, 2, 4-22
A	US6071489 (SAMSUNG DISPLAY DEVICE CO., LTD) 6 June 2000, abstract	1-22
A	US6241959B1 (SAMSUNG DISPLAY DEVICE CO., LTD) 5 June 2001, abstract	1-22
A	JP 2001122626A (NIPPON CHEM. IND. CO., LTD) 8 May 2001, paragraphs [0001] to [0006]	1-22

 Further documents are listed in the continuation of Box C. See patent family annex.

- \* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

29 MARCH 2005 (29.03.2005)

Date of mailing of the international search report

31 MARCH 2005 (31.03.2005)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office  
920 Dunsan-dong, Seo-gu, Daejeon 302-701,  
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

LEE, HYUN SONG

Telephone No. 82-42-481-8296



## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2004/003530

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US5718989	1998-02-17	US5795558 JP09237631A2 EP0782206B1 EP0782206A1 DE69627462T2 DE69627462C0 CN1156910A CN1139138C	1998-08-18 1997-09-09 2003-04-16 1997-07-02 2003-10-30 2003-05-22 1997-08-13 2004-02-18
JP200345424A	2003-02-14	JP200345424A	2003-02-14
JP2003007298A	2003-01-10	JP2003007298	2003-01-10
US6071489	2000-06-06	KR0241493B1 KR0237311B1 KR0211179B1 KR0198882B1 JP10247497A2 JP03007066B2	2000-02-01 2000-01-15 1999-07-15 1999-06-15 1998-09-14 2000-02-07
US6241959B1	2001-06-05	US20010028874A1 US6773852 US6241959 KR0261509B1 KR0261508B1 JP11246225A2 DE19849343A1 CN1216289A	2001-10-11 2004-08-10 2001-06-05 2000-07-15 2000-07-15 1999-09-14 1999-06-02 1999-05-12
JP2001122626A	2001-05-08	JP2001122626A	2001-05-08

BEST AVAILABLE COPY